Metal Detective Lab T/I: /12

Metals are solids that are usually shiny, malleable, good conductors of electricity and heat.

In this lab, you will study 4 physical properties to determine whether or not a substance is a metal. These properties are: lustre, malleability, magnetism and electrical conductivity.

**Question**

Can the testing of lustre, malleability, magnetism and electrical conductivity be used to correctly identify substances as metals or non-metals?

**Procedure**

1. Decide how you are going to test several objects to determine if they are metals by using the above properties & discuss with your teacher.

2. Record your observations in Table 1 below.

**Table 1: Properties of Unknown Samples [8 marks]**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sample #** | **Properties** | | | | |
| **Lustre**  **(Shiny or Dull?)** | **Malleable?**  **(Yes or No)** | **Magnetic?**  **(Yes or No)** | **Electrical Conductor?**  **(Yes or No)** | **Metal?**  **(Yes or No)** |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |
| 5 |  |  |  |  |  |
| 6 |  |  |  |  |  |
| 7 |  |  |  |  |  |
| 8 |  |  |  |  |  |

**Analyze & Evaluate**

1. Which properties could be used to correctly identify all metals? [2 marks]

2. Why is it necessary to use more than one property to identify the metals? [2 marks]